

observation; after feeding for several days it prepared for ecdysis and was four days thinking about it! After the change I at once recognised it as it was quite typical of the full fed larva and I gave it dock under the same conditions. It has now cast another skin without any apparent change in appearance except that of size, it being now one inch in length. The question is, when was the egg from which it hatched laid? About the beginning of January I found two full fed larvae of this species and on February 16th another; these, I presume, are offspring of the moths which one sees on treacle in September and October and are therefore normal, but this tiny larva must have come from a *very* late moth, or it must have spent about three months in the egg state. I remember many years ago finding larvae of this species feeding on chrysanthemums in our greenhouse at Clapton—to my father's disgust and my own delight!—after the plants had been brought in for flowering, and this would be in September or October, so no doubt these larvae would have emerged as moths the same year, though they *might* have passed the winter as pupae. I see Newman and Leeds in their *Text Book* show the larva in every month and the species as continuously brooded from March to September, during which period ova, larva, pupa and imago may all be found. These two peculiarities make this species absolutely unique amongst the British lepidoptera, for although most of the internal stem and root feeders pass two or three years as larvae, their imaginal period is very short. Given a run of very mild winters *meticulosa* might become continuously brooded throughout the year! I have seen the imago here once only but no doubt it remains on the wing much later than in less favoured parts of the country and as the winter has so far been mild and open this tiny larva may be accounted for in that way.—C. NICHOLSON, F.E.S., Tresillian, Cornwall. *March 6th, 1931.*

BIRDS AND INSECTS.—During the correspondence on this subject some fifteen years ago I wrote a contribution respecting *Plusia inoneta* larvae and a robin; see this magazine Vol. 28 (1916) p. 138. Having accumulated further evidence of the Robin's taste in insects it may be of interest to set it forth here. By way of introduction I may say that for many years whilst we were at Hale End we were rarely without one, or a pair, of this bird in a more or less tame condition in the garden, so that observation and experiment were comparatively easy, and but for that universal and unmitigated pest, the domestic cat, would have been much easier. Since we came here we have continued to encourage birds in the garden and our tame robins are objects of much interest and instruction. On several occasions of scarcity of food in the garden, or when they were rearing their young I have gone to Epping Forest and beaten for larvae, giving the whole "bag" (except any that I wanted to keep) to the robins on my return. This provided them with easily earned food and enabled me to observe their attitude to the various kinds of larva. I found a good dodge was to put all the larvae into a fairly large cardboard box with a halfinch hole at one end; this was placed on the top of my tool-shed and was then just at a convenient height for me to note the species of each larva as it crawled through the hole and one or the other of the birds took it. The cock robin got quite knowing after a time and if there happened to be only one larva visible when he returned from the nest he would sometimes

wait to see if another would appear, snapping it up as soon as its head came into view. I have not yet adopted this dodge here, but I save every larva I find and do not want for myself, until I see one of our robins to offer it to; I do the same with moths and insects of other orders. We always keep a supply of meal-worms provided by Gamage's, and the pupae and perfect beetles (*Tenebrio molitor*) are eaten just as readily as the larvae. It has been most interesting to see that the theories of protective and warning coloration are well supported by the behaviour of our robins. All smooth larvae I have tried whether green, brown, grey or nondescript, are readily taken, whether Noctuids or Geometrids, except *Abraxas grossulariata*, the *Hyponomeuta* species, *Diloba coeruleocephala*, *Hadena oleracea* and probably every other black spotted or yellow marked species. On the other hand all hairy larvae, except *Nola cucullatella*, are rejected; I have tried the birds with *Spilosoma menthastri*, *S. lubricipeda*, *Euproctis similis* and *Malacosoma neustria*.

The cock robin is quite at home in my garden shed here and snaps up the "bluebottles" and other Diptera that fly to the window, as well as any "clothes-moths" disturbed whilst I am working; these consist mainly of *Borkhausenia pseudospretella*, with an occasional *Endrosis lacteella*, or *Depressaria*. *Dasycera sulphurella* is also common in the shed, but I have never seen it touched. Larger moths if protectively (but not warningly) coloured are taken readily if they move. I once offered a fine *Pygaera bucephala* at rest on my finger to one of our Hale End robins but she was not at all interested, until I threw it on to the path, where it alighted upside down, and as it fluttered in righting itself it was at once snapped up, as it would have been had it shown signs of life whilst on my finger. *Hepialus lupulinus* was also accepted readily, and disturbed Geometrids on the wing are usually readily taken, the snapping of the bird's beak—irresistably suggesting a smacking of human lips!—being very noticeable.

I have not tried them with many Coleoptera, but such as have been offered suggest that robins are good entomologists! The meal-worm beetle has already been mentioned and *Helops striatus*, which is very common about here in dead wood and under bark, etc., is readily taken but the Carabids, such as *Nebria brevicollis*, *Steropus madidus*, *Harpalus aeneus* and the small black Harpalids, are left severely alone! The Coccinellids, too, are rejected, but I believe *Sitones* are accepted, though I am not sure, and I have not experimented with the green *Phyllobius* and *Polydrusus*.

Earwigs are accepted readily here, but the Hale End birds would not have anything to do with them, and apparently woodlice are unacceptable to all robins, as is also *Polydesmus*; but *Lithobius forficatus* and *Geophilus flavus* are eaten with gusto, and *Julus terrestris* also, after some special treatment which I could not understand. I offered a half-grown specimen to our cockrobin and after nipping it once or twice he turned his head round and apparently touched the underside of his tail with it; this occurred once or twice before he swallowed it, but there was no rubbing such as one would expect if there were any unpleasant exudation to wipe off.

Spiders of small dark species are readily eaten, but I don't know what would happen to the big Tegenarias.

In conclusion I may add that robins have no difficulty in catching swiftly moving spiders and *Lithobius*, but I usually notice that when the latter is discovered under pots, stones, boards or tiles no robin is near and I secure the specimen until I can call one of the birds up to take it. Robins are wonderfully smart at finding meal worms thrown to them and falling amongst dead leaves or grass, and on one occasion recently the hen robin actually *turned over* a dead leaf to secure the meal worm that had fallen under it several feet away from where the bird was waiting and could not see it when she reached the spot.

Another point of interest is that protectively coloured larvae are fairly safe in situ so long as they are still, but are caught at once when seen in motion; nevertheless a rolled up green or brown larva thrown towards the bird when on the ground, or offered on one's open palm, is immediately recognised and taken. This *may* be accounted for by the fact that when the birds become familiar with us they take it for granted that anything one offers is intended to be eaten, unless its colour warns them otherwise. I don't recollect ever trying our robins with any of the Hemiptera-Heteroptera, but when I do so I will report the result in a future article.—C. NICHOLSON, F.E.S., Tresillian, Cornwall.

CURRENT NOTES AND SHORT NOTICES.

From W. F. H. Rosenberg, F.Z.S., F.E.S., of Haverstock Hill, we have received a copy of his new *Catalogue of Lepidoptera*. (Price List No. 31.) It consists of 64 pp. large octavo, and lists the species in systematic order. The *Papilionidae*, for instance, being subdivided into America, Indo-Australia, Africa and Palaearctic. The Noctuae, Geometrae and Micros are not listed, but Mimicry Groups, Warning Colours, Protective Resemblance and Sexual Dimorphism are specialised. There are also cheap lots and special offers of certain families offered. Those who wish to add, say, examples of far eastern forms of our British or European species would do well to consult such a list.

Another Catalogue has reached our table, A Catalogue of Books on Insects, from John D. Sherman, Jr., of Mt. Vernon, New York, including the list of purchases made by the compiler during his tour in Europe of 1930, of which there is an account on the early pages. The Catalogue shows how prices have soared since we bought our own copies of numerous works. For example, Hagen's *Bibliotheca Entomologica*, for which some years ago we gave 8s. is now priced at £6. Still a large number of useful volumes are quite reasonably priced and should attract buyers.

Dr Rocci has sent us copies of two articles published by him recently in the *Boll. Soc. Ent. It.* The first is argumentative on subjects of which notes have at various times been included in our pages, and in the pages of other English magazines. The remarks of the author on the works of de Prunner are well worth noting as coming from one familiar with de Prunner's localities in Piedmont. The author then goes on to discuss the Nomenclature Rules proposed by the British Nomenclature Committee, as published in the *Proc. Ent. Soc. Lond.* (1928). The second pamphlet contains a few notes on *Melitaea aethalia*.